



2022 TPB Traffic Signal Surveys

Every two years since 2011 TPB staff have conducted surveys related to traffic signals. These surveys are the Power Back Up Survey and the Signal Optimization Survey. These voluntary surveys are sent out to TPB member jurisdictions that are responsible for traffic signals in the NCR region. TPB staff will be starting this survey in the early winter of 2021 with results reported to SPOTS in the Spring. Following are the questions from the 2020 TPB traffic signal surveys.

2020 Power Back Up Survey

SECTION 1: RESPONDER INFORMATION

1. Please provide your contact information.
 - a. Agency
 - b. Name
 - c. Job Title
 - d. Telephone
 - e. E-mail

SECTION 2: GENERAL TRAFFIC SIGNAL STATISTICS

2. How many signals are under your maintenance for signalized intersections?
3. What technologies are used for the traffic signal power backup system in your organization?
 - a. Battery Based
 - b. Generator Based
 - c. Other
4. How many signals have backup power?
 - a. Battery Based Only
 - b. Generator Based Only
 - c. Both
 - d. Other



SECTION 3: TRAFFIC SIGNAL BATTERY BACKUP SYSTEM SPECIFICATIONS

5. If applicable, please provide specifications for the battery-based power backup system.
 - a. Duration of Backup Power-Full Color Operations (# of hours)
 - b. Duration of Backup Power-Flash Mode Operations (# of hours)
 - c. Manufacturer and Model
6. Does the battery-based power backup system fit inside your traffic signal cabinet?
 - a. Yes
 - b. No
 - c. N/A
7. If applicable, how frequently do you routinely replace batteries so that they can maintain the designed performance?

SECTION 4: GENERATOR BASED TRAFFIC SIGNAL POWER BACKUP SYSTEM SPECIFICATIONS

8. If applicable, please provide specifications for the generator-based power backup system.
 - a. Duration of Backup Power before Refilling- Full Color Operations ((# of hours)
 - b. Duration of Backup Power before Refilling- Flash Mode Operations ((# of hours)
 - c. Manufacturer and Model
9. Does your agency outfit signal controllers with generator plugs for portable generators?
 - a. Always
 - b. Sometimes
 - c. Never
 - d. N/A
10. Does your agency have generators dedicated primarily to power traffic signals?
 - a. Yes
 - b. No
11. If the answer to Question #10 is yes, how many generators dedicated to traffic signals does your agency maintain?
12. Can your agency access generators from other departments to provide power backups for traffic signals? From what other agencies? (Check all that apply)
 - a. Yes - Department of Transportation
 - b. Yes - Department of Public Works
 - c. Yes - Law Enforcement
 - d. Other (please specify)
13. If the answer to Question #10 is yes, how many generators could your agency access?
14. Based on experience, how many signals could be run simultaneously by generators or battery backups during a widespread, long-term (24+ hours) power outage given your equipment and manpower?



SECTION 5: TRAFFIC SIGNAL OPERATIONS UNDER BACKUP POWER

15. Does the power backup system change the mode under which traffic signals operate?
 - a. Yes
 - b. No
 - c. If yes, what mode do traffic signals operate under backup power?

16. Are traffic signals coordinated under backup power?
 - a. Yes
 - b. No
 - c. Other (Please Specify)

17. If applicable, does Emergency Vehicle Preemption (EVP) function under backup power?
 - a. Yes
 - b. No
 - c. N/A
 - d. Other (Please Specify)

18. If applicable, does Transit Signal Priority (TSP) function under backup power?
 - a. Yes
 - b. No
 - c. N/A
 - d. Other (Please Specify)

SECTION 6: PROCEDURES OF POWER BACKUP SYSTEM OPERATIONS

19. Is there a procedure to prioritize the placement of the power backup system?
 - a. Yes
 - b. No
 - c. If yes, how is it established and is it associated with the identified evacuation routes?

20. If applicable, what are the policies/procedures/priorities for your agency to work with utility companies to restore the power to traffic signals?

21. If applicable, how does your agency coordinate with utility companies?

22. What other methods does your agency employ to control traffic flow at signalized intersections when widespread power outages inhibit the function of the traffic signal system? (Check all that apply)
 - a. Traffic barriers to divert vehicles or prohibit movements
 - b. Dispatching traffic control officers
 - c. Temporary stop signs
 - d. Other (please specify)



SECTION 7: ADDITIONAL INFORMATION

23. Is there any additional information you would like to share with us concerning the above questions or other topics?

If you have any questions, please contact MWCOG/TPB staff member Andrew Burke at the below:

aburke@mwco.org

2020 Traffic Signal Optimization

SECTION 1: RESPONDER INFORMATION

1. Please provide your contact information.
 - a. Agency
 - b. Name
 - c. Job Title
 - d. Telephone
 - e. E-mail

SECTION 2: TRAFFIC SIGNAL OPTIMIZATION (TIMING) QUESTIONS

2. Number of signalized intersections (exclude firehouse, pedestrian crossing flashers, etc.) under your maintenance in the National Capital Region as of December 31, 2021?
3. Number of signals optimized/retimed at least once between January 1, 2019 and December 31, 2021 (3-year period)
4. How many traffic signals are using adaptive systems?
5. Technique(s) used for signal optimization/retiming (check all that apply)
 - a. Computer based optimization (e.g., Synchro).
 - b. Active management using real-time observation.
 - c. Engineering judgement/Troubleshooting/Other.
 - d. Adaptive systems using set parameters.
 - e. New tools or Performance Measures. Please specify below.
 - f. None
6. Do you combine two or more of the techniques in question #5 for optimizing intersections?
 - a. Yes
 - b. No



7. Percentage of signals optimized by primary technique. (Total adds up to 100)
 - a. Computer Based Optimization
 - b. Active Management using real time observation (if above not used)
 - c. Engineering Judgement/Troubleshooting/Other (If neither of above used)
 - d. None

SECTION 3: COST AND BENEFIT ANALYSIS

8. What is the approximate annual budget of your signal optimization/retiming program?
9. Does your agency have a policy or standard for how frequently signals are optimized? If yes, please specify the most common applied standard.
10. Do you compile and report the results of your traffic signal timing efforts?
 - a. Yes.
 - b. No.
11. If yes, please provide a web link to the document below or email to: aburke@mwkog.org
12. If you would like us to contact you regarding the signal optimization report, please check the box below.

If you have any questions, please contact Andrew Burke at aburke@mwkog.org